

作业 #8

1. Define a structure `TIME` containing three members, hour, minute and second. Given three moments

```
struct TIME t1={18, 11, 25}, t2={5, 12, 3}, t3={8, 1, 0};
```

Write a program to output them according to the following format:

hh:mm:ss

[Sample]

```
18:11:25
05:12:03
08:01:00
```

2. Define a structure `DATE` containing three members, year, month and day. Given a date

```
struct DATE d1={2018, 6, 1};
```

Write a program to output d1 according to the following formats:

(a) yyyy.mm.dd

(b) mm/dd/yyyy

(c) yyyy-mm-dd

[Sample]

```
2018.06.01
06/01/2018
2018-06-01
```

3. Define a function `is_a_time()` that can determine if a given time is a valid time or not, and write a program to test the function.

[Sample]

```
Enter a time(hh:mm:ss): 8:59:59
08:59:59 is a time.
Enter a time(hh:mm:ss): 24:0:21
24:00:21 is NOT a time.
Enter a time(hh:mm:ss): 9:59:60
09:59:60 is NOT a time.
Enter a time(hh:mm:ss): 0:0:0
00:00:00 is a time.
Enter a time(hh:mm:ss): 23:59:59
23:59:59 is a time.
Enter a time(hh:mm:ss): _
```

4. Define a function `is_a_date()` that can determine if a given date is a valid date or not, and write a program to test the function.

[Sample]

```
Enter a date(yyyy-mm-dd): 2022-2-28
2022-02-28 is a date.
Enter a date(yyyy-mm-dd): 2022-2-29
2022-02-29 is NOT a date.
Enter a date(yyyy-mm-dd): 2022-9-31
2022-09-31 is NOT a date.
Enter a date(yyyy-mm-dd): 2022-12-31
2022-12-31 is a date.
Enter a date(yyyy-mm-dd): 2022-4-1
2022-04-01 is a date.
Enter a date(yyyy-mm-dd): _
```

5. Here are two function prototypes:

```
struct TIME get_a_time();
```

```
void display_next_second(struct TIME);
```

define two functions mentioned above, and write a program to get a time and output the next second of a given time.

[Sample]

```
Enter a time(hh:mm:ss): 23:58:59
The next time is : 23:59:00
Enter a time(hh:mm:ss): 23:59:59
The next time is : 00:00:00
Enter a time(hh:mm:ss): 12:4:5
The next time is : 12:04:06
Enter a time(hh:mm:ss): 11:45:59
The next time is : 11:46:00
Enter a time(hh:mm:ss): _
```

6. **[Optional]** Here are two function prototypes:

```
struct DATE get_a_date();
```

```
void display_next_day (struct DATE);
```

define two functions mentioned above, and write a program to get a date and output the next day of a given date.

[Sample]

```
Enter a Date(yyyy-mm-dd): 2022-2-27
The next day is : 2022-2-28
Enter a Date(yyyy-mm-dd): 2022-2-28
The next day is : 2022-3-1
Enter a Date(yyyy-mm-dd): 2022-3-31
The next day is : 2022-4-1
Enter a Date(yyyy-mm-dd): 2022-12-30
The next day is : 2022-12-31
Enter a Date(yyyy-mm-dd): 2022-12-31
The next day is : 2023-1-1
Enter a Date(yyyy-mm-dd): _
```